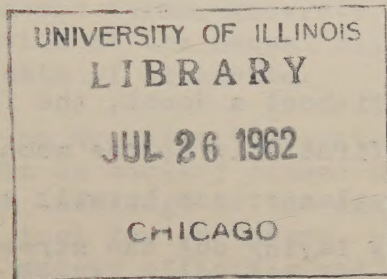


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CATS
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NEWS

"Without a doubt, the first man off our ship (first ship to the moon) is going to be a city planner and he will set to work immediately laying out the streets, with careful attention to open space for play areas."

Edwin Darby
Chicago Sun-Times

A BRIEF DESCRIPTION OF THE ILLINOIS
ACCIDENT COST STUDY

by Dayton P. Jorgenson

The toll exacted by motor vehicle accidents in terms of persons killed and injured generally is recorded with care and accuracy. Traffic fatalities are the denominator most commonly used in calculating rates to measure the effect of efforts to improve traffic safety. Certainly, the efforts of those concerned with engineering, education and enforcement should be directed first to preventing loss of life and reducing suffering resulting from traffic accidents. Yet, traffic deaths, viewed in economic terms, generate but a comparatively small fraction of the annual bill the public pays for the direct costs of accidents.

It is not nearly so dramatic to equate accidents with the economic drain on society caused by these events. Yet, detailed knowledge of the costs of accidents is an essential tool for engineers, planners, administrators, police, safety officials and others in basing decisions on fact.

Results of a comprehensive statewide study of accident costs undertaken by the Illinois Division of Highways in 1959 now are beginning to emerge. The purpose of the study, in general terms, was to collect and analyze the costs of motor vehicle accidents, and to relate the costs and characteristics of accidents to the highway and street facilities, the driver and the vehicle. It will make possible the interpretation and use of detailed accident cost information for various purposes in highway planning and design, selective enforcement and driver and safety education.

Until recently only broad estimates of the cost of accidents were available. Such estimates, prepared by interested groups, were based necessarily on incomplete data and lacked needed detail. National estimates ranged up to 7 1/4 billion dollars in 1957. This is about the same amount as the total spent for construction and maintenance of all the nation's streets and highways that year. Even this staggering cost was thought by many to be conservative. Yet, however

accurate, it is not possible to effectively use an estimate such as this in justifying expenditures for grade separations, freeways and other high type highway design, to indicate on which highways such features are or are not justified, etc. More detailed knowledge of costs in relation to highways and streets, vehicles or drivers is needed.

Toward this end, studies of the economic costs of motor vehicle accidents were first proposed by the Highway Research Board about fifteen years ago. A committee was established to review the need for and make recommendations with respect to fundamental research. After nearly two years of research and study, the committee recommended that a research project be developed by the Bureau of Public Roads, and that the Bureau should promote, guide and participate in accident cost case studies in any states interested in and able to undertake them.

Subsequently, a pilot study was conducted which helped to establish the theory, concepts and basic definitions employed in the design and conduct of accident cost studies. The nature and composition of accident costs were described. Case study by personal interview of the individual costs of a selected number of accidents was recommended as the most suitable research technique.

Only three other states had undertaken a study prior to Illinois -- Massachusetts in 1954 and New Mexico and Utah in 1955. Illinois was thus the first midwestern state to undertake such a study. With 3.5 million motor vehicles and over four million licensed operators driving more than thirty-four billion miles annually in Illinois, it is also the largest study of its kind to date.

The statewide study was based on a sample of passenger cars and trucks owned by Illinois residents which were involved in a mishap of any consequence resulting in any damage or loss during the year 1958. Samples totalling 7,851 cases were drawn from officially reported accident files. These yielded data on the more serious and costly accidents. To measure the extent and costs of the numerous minor mishaps, usually

not requiring official report, a sample of over 14,000 vehicle owners selected from registration records was canvassed to obtain their total accident experience in 1958. From owner reported accident experience, the officially reported accidents were identified and eliminated. Such events already were represented in the reported accident sample. Subsequently, data about unreported involvements were collected by mail and personal interview. Thus, the sum total of all motor vehicle mishaps, ranging from those with damage of one dollar to the most costly, in excess of \$100,000, are included in study findings.

It would be difficult to give the reader a brief written description of study operations. As the title of this article promises brevity, a diagram is provided (see Figure 1) to illustrate the processes involved in compiling accident cost information. The relationship between the two sample sources (reported accident files and vehicle registration records) to yield a complete inventory of accidents and associated costs can be seen clearly.

It is important to understand the basic theory upon which the study of accident costs is based. As developed and approved by the Highway Research Board Committee, it may be stated briefly as follows:

"Motor vehicle accident costs may be correctly represented by the money value of damages and losses to persons and property plus expenditures in connection with the accident potential."

Thus, damages may go unrepaired and losses remain uncompensated, but the money value will remain the same to be accounted for at a later date in the form of depreciated value or decreased earning capacity. Damage of a minor nature often goes unrepaired until cumulative damages dictate a repair job. The owner of a vehicle or an injured person may not pay for damages or losses of liability as that of the other driver or owner. Insurance companies may compensate wholly or in part for damages. Courts may award damages in excess of or less than the true value. Thus, money spent would not represent a true measure of cost.

FIGURE 1
MOTOR VEHICLE ACCIDENT COST STUDY
FLOW DIAGRAM OF STUDY OPERATIONS

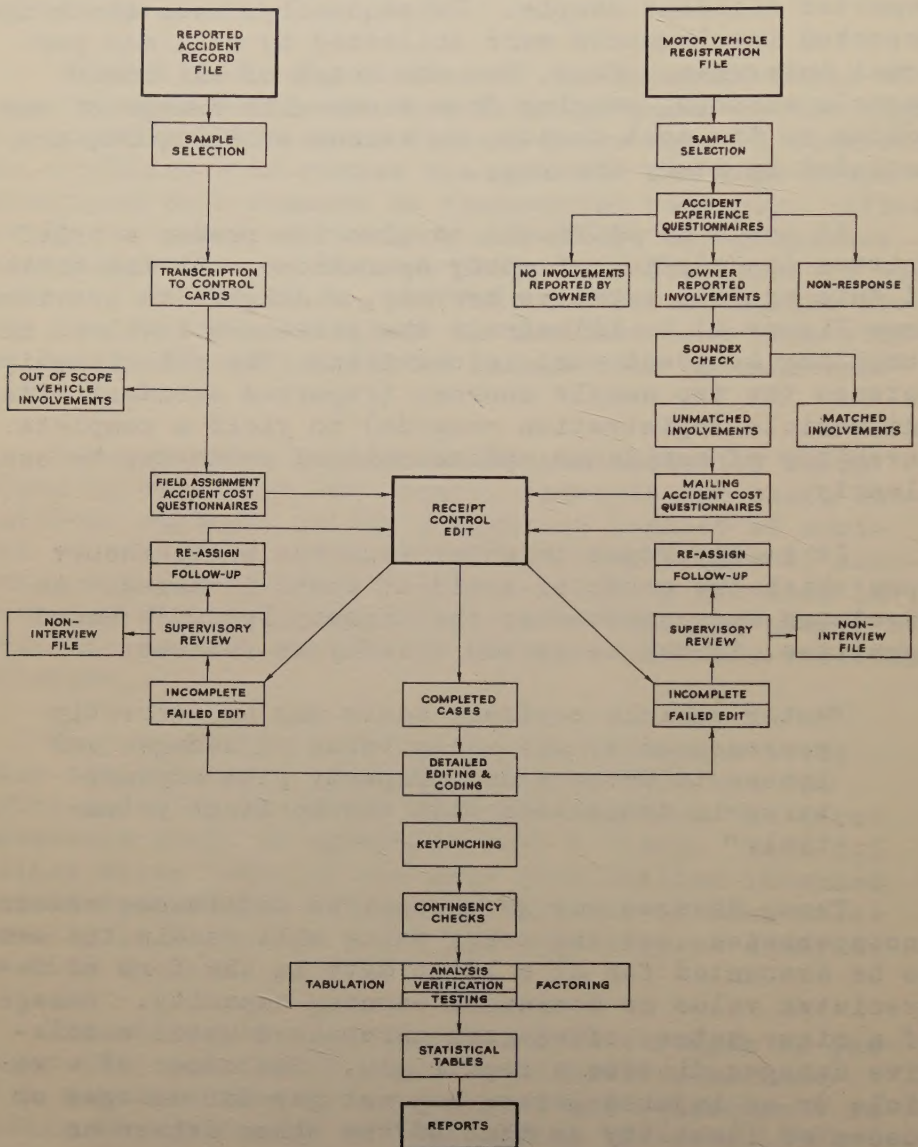
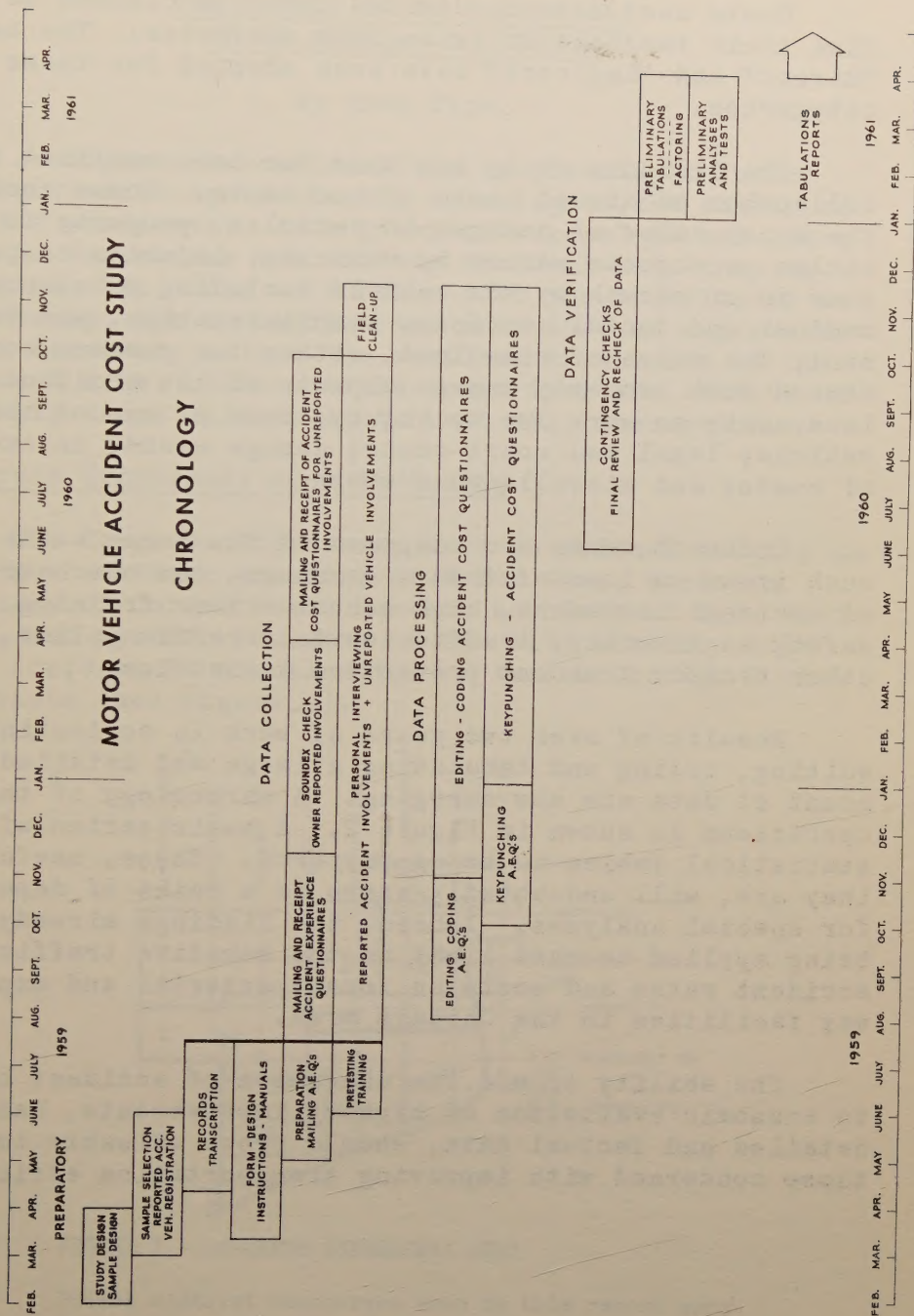


FIGURE 2



Costs must also be divided into two classes to define their tangible or intangible character. The terms "direct" and "indirect" have been adopted for these categories.

The Illinois study has thus far been confined to collection of direct costs of accidents. These include the money value of damages to vehicles, property in vehicles or objects struck by vehicles; injuries to persons in or struck by the vehicle including ambulance, medical and dental services, hospitalization, and treatment; the value of time lost, either for reasons connected with property damage aspects of the accident or incapacity to work due to injury; loss of use of the vehicle; legal and court costs; damage awards in excess of costs; and miscellaneous costs.

Indirect costs are composed of the money value of such items as loss of future earnings, the overhead cost of accident insurance, high school driver training, safety engineering, traffic courts, traffic police, and other traffic accident prevention activities.

Results of over two years of work in collecting, editing, coding and tabulating a large and detailed amount of data are now emerging. A chronology of these operations is shown in Figure 2. A basic series of statistical tables is being prepared. These, useful as they are, will undoubtedly serve as a point of departure for special analyses. Indeed, the findings already are being applied to shed light on the relative traffic accident rates and costs on local, arterial and expressway facilities in the Chicago area.

The ability to add the dimension of accident cost to economic evaluation of highway improvements, based on detailed and factual data, should prove valuable to all those concerned with improving transportation efficiency.

THE EFFECT OF AN EXPRESSWAY ON AN AREA -- ACCIDENTS

by Fred Frye

An important consideration in planning a future transportation system is the reducing of the number of traffic accidents. In a previous report¹ it was shown that an expressway has a lower accident rate than an arterial. In order to further test the benefits of an expressway, the assumption was made that an expressway would favorably affect the accident experience of the adjacent area. This article summarizes the results of investigations undertaken to test this assumption.

Congress Expressway Area 1955-1959

The Congress Expressway Area is defined roughly as having a northern boundary of North Ave., southern boundary of Cermak Road, eastern boundary of Lake Michigan, and western boundary of the city limits. This area conforms to a collection of twelve Chicago Police Districts (see Figure 1).

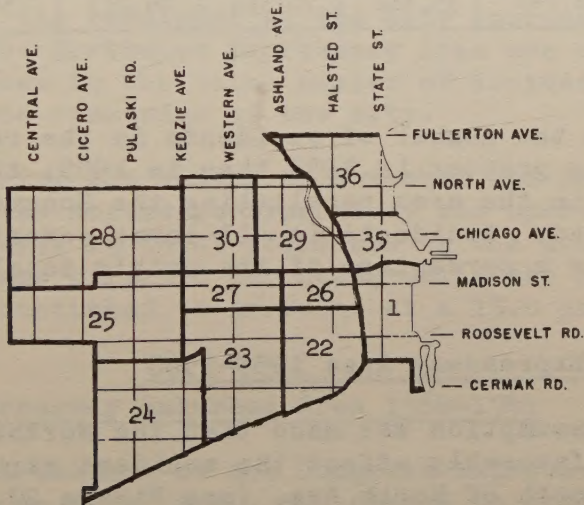


FIGURE 1 - CONGRESS EXPRESSWAY AREA

Police district boundaries used in this report were in existence in 1959. The boundaries have been changed since then.

¹Hoch, I., Accident Experience: Arterials vs. Expressways, Chicago Area Transportation Study, 1959.

The year before the first segment of the expressway was opened (1955) and the year after it was opened for its full length (1959) were chosen for comparison. Accident data by severity class were collected for the twelve police districts for the two years and compared. The results of this comparison appear in Table 1.

TABLE 1 -- Changes in Traffic Accidents in a Selected Area
After the Opening of the Congress Street Expressway

Severity Class	Total Reported Accidents				Percentage of City Accidents	
	Paralleling Area		Remainder of City		Paralleling Area	
	1955	1959	1955	1959	1955	1959
Fatal....	140	100	237	190	37.1	34.5
Injury...	9,646	8,280	18,083	18,780	34.8	30.6
PDO.....	26,954	26,982	52,036	57,245	34.1	32.1
Total	36,740	35,362	70,356	76,215	34.3	31.7

While the number of accidents in the remainder of the city is greater in 1959 than in 1955, the number of accidents in the area paralleling the Congress Expressway declined. Accidents in all three severity classes declined as a percentage of the city's totals from 1955 to 1959.

Northwest Expressway Area 1959-1960

The assumption was made that the Northwest Expressway would favorably affect the accident experience of the area north of North Ave. (see Figure 2). This is a rather large area, and only marginal benefits could be expected along the fringes.

The total number of accidents in Chicago in 1960 (126,777) is 13.7 per cent greater than the 1959 total (111,477). Taking the first ten months of the two years, it is found that the increase from 1959 to 1960

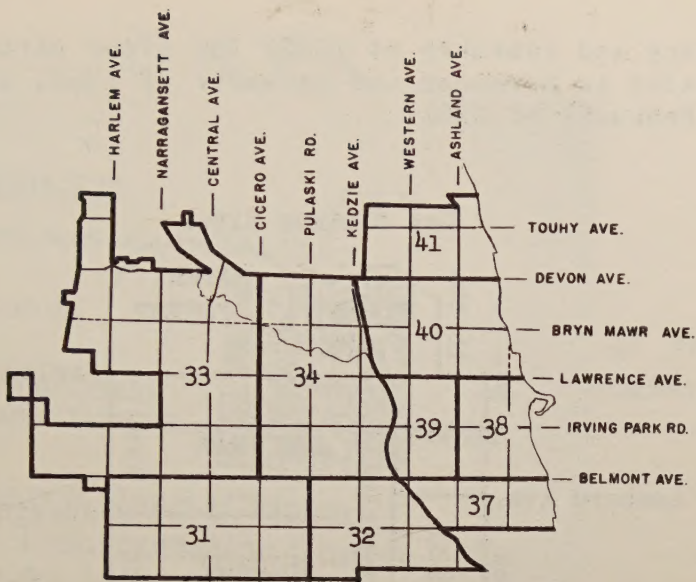


FIGURE 2 - NORTHWEST EXPRESSWAY AREA

is 13.9 per cent. During the first ten months, the area defined in Figure 2 increased 13.0 per cent from 1959 to 1960, and the remainder of the city increased 14.2 per cent. The Northwest Expressway Area was experiencing an increase in the total number of accidents similar in rate to the remainder of the city.

But, during the months of November and December of 1960, after the Northwest Expressway was opened, the rate of increase in total accidents in the area of the expressway rose only 3.8 per cent, while the remainder of the city continued to increase at a 13.0 per cent rate.

Congress Expressway Suburban Area 1960-1961

The last section of the Congress Expressway, from Laramie Ave. to First Ave., was opened to traffic during October, 1960. This link is approximately four miles long, and extends through the western suburbs of Oak Park, Forest Park, and Maywood. The opening of this link made it possible to investigate the traffic volume and accident experience in a selected area (see Figure 3) during two four month periods. The before period was designated as November and December of 1959, and

January and February of 1960; the after period was designated as November and December of 1960, and January and February of 1961.

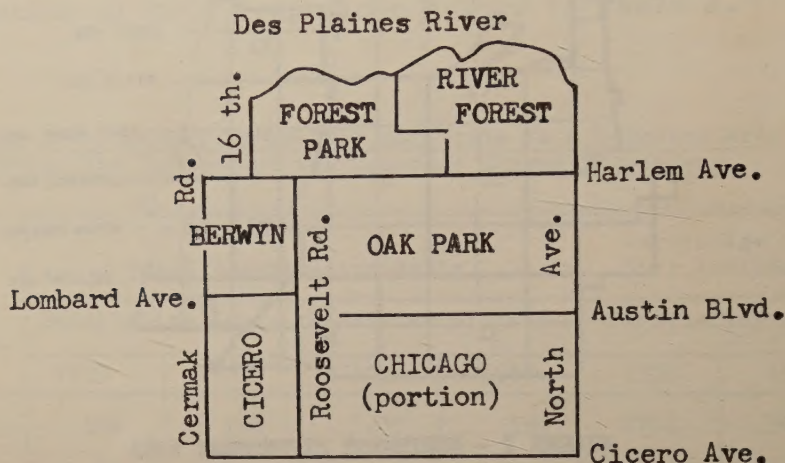


FIGURE 3 - CONGRESS EXPRESSWAY SUBURBAN AREA

Accident data were obtained through the use of accident reports on file at the separate police departments. The information has been key-punched and totals approximately 4,600 cards. A network code, i.e., local, arterial or expressway has been punched into the cards, along with other pertinent data for analysis and control.

There were 2,340 accidents in the study area during the before period and 2,187 during the after period. This represents a 6.5 per cent reduction. The change in traffic volume by street type is being established through a traffic counting program. A preliminary tab revealed a reduction of 8.4 per cent in total accidents on local streets, and a 12.1 per cent reduction on arterials.

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